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Attorney Docket No. 8194-585

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Dahlman et al.
Serial No.: 09/923,374
Filed: August 7, 2001
For: METHODS AND APPARATUS FOR SELECTIVE DEMODULATION AND DECODING OF COMMUNICATIONS SIGNALS

Group Art Unit: 2631
Confirmation No.: 8934
Examiner: Pankaj Kumar

Date: January 30, 2006

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TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION--37 C.F.R. § 41.37)

1. Transmitted herewith is the APPEAL BRIEF for the above-identified application, pursuant to the Notice of Appeal mailed on November 28, 2005 and received at the U.S. Patent and Trademark Office on November 30, 2005.

2. This application is filed on behalf of
   - ☐ a small entity.

3. Pursuant to 37 C.F.R. § 41.20(b)(2), the fee for filing the Appeal Brief is:

☐	small entity	$250.00
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Respectfully submitted,

Robert M. Meeks
Registration No. 40,723

Myers Bigel Sibley & Sajovec, P.A.
P. O. Box 37428
Raleigh, North Carolina 27627
Telephone: (919) 854-1400
Facsimile: (919) 854-1401
Customer No. 20792

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Candi L. Riggs

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Candi L. Riggs
Candi L. Riggs

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences" mailed November 28, 2005 and received at the United States Patent and Trademark Office on November 30, 2005.

Real Party In Interest

The real party in interest is assignee Ericsson Inc., having its principal place of business in Plano, TX.

Related Appeals and Interferences

Appellants are aware of no appeals or interferences that would be affected by the present appeal.

Status of Claims

Claims 1-70, and 72-108 remain pending as of the filing date of this Brief. Claims 69-70, and 72-85 have been allowed, while Claims 10, 18-20, 29-31, 38-44, 47, 48, 52, 55, 56, 62-68 and 90-96 have been indicated as being allowable if amended to independent form incorporating the recitations of base and intervening claims. Claims 1-9, 11-17, 21-28, 32-

37, 45, 46, 49-51, 53, 54, 57-61, 86-89 and 97-108 stand finally rejected. Appellants appeal the final rejection of Claims 1-9, 11-17, 21-28, 32-37, 45, 46, 49-51, 53, 54, 57-61, 86-89 and 97-108. The attached Appendix A presents the claims at issue as finally rejected in the Final Office Action mailed July 26, 2005 (hereinafter "Final Action") and the Advisory Action mailed November 16, 2005 (hereinafter "Advisory Action").

Status of Amendments

The attached Appendix A presents the pending claims and the corresponding status of each of the pending claims.

Summary of the Claimed Subject Matter

The present application includes method and system claims for selective processing of communications signals. Independent Claim 1 is directed to a method of processing a spread spectrum signal. The spread spectrum signal is correlated with a spreading sequence at a first plurality of correlation times to produce a first plurality of time-offset correlations. The first plurality of time-offset correlations is processed to produce a first symbol representation for a symbol. A first quality for the first symbol representation is determined and, responsive to the determined first quality, it is determined whether to further process the first symbol representation or to process a second symbol representation for the symbol generated from the spread spectrum signal. Examples of such operations are described with reference to FIGs. 5A , 5B, 7 and 8 of the present application

Independent Claim 12 is directed to a method of processing a spread spectrum signal. The spread spectrum signal is correlated with a spreading sequence at a first plurality of correlation times to produce a first plurality of time-offset correlations. The first plurality of time-offset correlations is processed to produce a first symbol representation for a symbol. A first quality for the first symbol representation is determined. Responsive to the determined first quality failing to meet a predetermined criterion, a second plurality of time-offset correlations of the spread spectrum signal with the spreading sequence is processed to produce a second symbol representation. An example of such operations is described with reference to FIGs. 5A and 5B.

Independent Claim 32 is directed to a method of processing a spread spectrum signal. The spread spectrum signal is correlated with a spreading sequence at respective first and second pluralities of correlation times to produce respective first and second pluralities of time-offset correlations. Respective ones of the first and second pluralities of time-offset correlations are processed to produce respective first and second symbol representations for a symbol. At least one quality is determined for at least one of the first and second symbol representations. Responsive to the determined at least one quality, it is determined whether to further process one of the first symbol representation or the second symbol representation. Examples of such operations are described with reference to FIGs. 7 and 8.

Independent Claim 50 is directed to a method of processing a spread spectrum signal wherein the spread spectrum signal is demodulate according to a first demodulation process to generate a first symbol representation for a symbol. A first quality for the first symbol representation is determined and, responsive to the determined first quality, it is determined whether to further process the first symbol representation or to process a second symbol representation that is generated from the spread spectrum signal according to a second demodulation process. Examples of such operations are described with reference to FIGs. 5A, 5B, 7 and 8.

Independent Claim 58 is directed to a method of processing a communications signal, wherein the communications signal is demodulated according to respective first and second demodulation processes to produce respective first and second symbol representations. A first one of the first and second symbol representations is decoded to determine a quality for the first one of the first and second symbol representations and, responsive to the determined quality, it is determined whether to further process the first symbol representation or to decode the second symbol representation. Examples of such operations are described with reference to FIGs. 7 and 8.

Independent Claims 86 and 99 are apparatus analogs of Claims 58 and 1, respectively.

Issues to be Reviewed on Appeal

1. Are Claims 1-3, 9, 12-15, 21, 27, 32, 49, 50, 53, 57, 58, 60, 86, 88, 97-99, 100, 101 and 107 properly rejected under 35 U.S.C. § 103(a) as unpatentable over PCT International Publication No. WO 00/35112 to Atarius et al. (hereinafter "Atarius")?

2. Are Claims 4-6, 8, 11, 23, 24, 26, 28, 33-35, 37, 102-104, 106 and 108 properly rejected under 35 U.S.C. § 103(a) as unpatentable over Atarius in view of U.S. Patent No. 6,463,097 to Held et al (hereinafter "Held")?

3. Are Claims 7, 25, 36 and 105 properly rejected under 35 U.S.C. § 103(a) as unpatentable over Atarius in view of Held in further view of U.S. Patent No. 6,259,721 to Uesugi et al. (hereinafter "Uesugi")?

4. Are Claims 16, 17, 45 and 46 properly rejected under 35 U.S.C. § 103(a) as unpatentable over Atarius in view of U.S. Patent No. 6,683,924 to Ottosson et al. (hereinafter "Ottosson")?

5. Are Claims 51, 54, 59 and 87 properly rejected under 35 U.S.C. § 103(a) as unpatentable over Atarius in view of U.S. Patent No. 6,788,669 to Takano et al. (hereinafter "Takano")?

6. Are Claims 61 and 89 properly rejected under 35 U.S.C. § 103(a) as unpatentable over Atarius in view of U.S. Patent No. 5,208,829 to Soleimani et al. (hereinafter "Soleimani")?

Argument

I. **Introduction**

Claims 1-9, 11-17, 21-28, 32-37, 45, 46, 49-51, 53, 54, 57-61, 86-89 and 97-108 stand rejected as obvious under 35 U.S.C. § 103. To establish a prima facie case of obviousness, the prior art reference or references when combined must teach or suggest ***all*** the recitations of the claims, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. §2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. M.P.E.P. §2143.01,

citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). As emphasized by the Court of Appeals for the Federal Circuit, to support combining references, evidence of a suggestion, teaching, or motivation to combine must be *clear and particular*, and this requirement for clear and particular evidence is not met by broad and conclusory statements about the teachings of references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). The Court of Appeals for the Federal Circuit has further stated that, to support combining or modifying references, there must be *particular* evidence from the prior art as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed. *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000).

Furthermore, as stated by the Court of Appeals for the Federal Circuit in *In re Sang-su Lee*, a factual question of motivation is material to patentability, and cannot be resolved on subjective belief and unknown authority. *See In re Sang-su Lee*, 277 F.3d 1338 (Fed. Cir. 2002)(emphasis added). It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." *W.L. Gore v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 312-13 (Fed. Cir. 1983).

II. Independent Claims 1, 12, 32, 50, 58, 86 and 99 are patentable over Atarius

Independent Claims 1, 12, 32, 50, 58, 86 and 99 are rejected under 35 U.S.C. § 103 as being unpatentable over Atarius. Appellants submit that the Final Action has failed to establish a *prima facie* case of obviousness of these claims, as the cited modification of Atarius does not disclose or suggest all of the recitations of these claims.

In rejecting these claims, the Final Action maintains the basis for rejection asserted in the Office Action mailed March 29, 2005 (hereinafter "First Office Action"). *Final Action*, pp. 2 and 3. The First Office Action asserts that Fig. 3 of Atarius teaches all of the recitations of Claims 1, 12, 32, 50, 58, 86 and 99, except "symbols." *See First Office Action*, pp. 2 and 3. More particularly, the First Office Action asserts that Fig. 3 of Atarius teaches "determining a first quality for the first symbol representation (Atarius fig. 3: determining whether the output 362 meets a threshold 364)" and:

> . . . determining whether to further process the first symbol representation (Atarius fig. 3: if the input to 364 is above the threshold then there will be a data output out of 364 that will undergo further processing) or to process a second symbol representation (Atarius fig. 3: if the input 364 is below the threshold then the system will wait to output till it can get samples which after the fingers and multiplies and accumulation are above a threshold by processing the next 112) for the symbol (Atarius fig. 3: 112; pg. 3 line 25: digital samples) generated from the spread spectrum signal (Atarius fig. 3: input signal; pg. 1 line 4: spread spectrum).

First Office Action, p. 3.

As noted in Appellants' Amendment filed May 2, 2005, this represents a misunderstanding of the cited material from Atarius and, consequently, a misapplication of Atarius in rejecting the claims. The First Office Action appears to assert that the threshold device 364 is a device that "tests" the output of the accumulator 362 and only produces a symbol estimate if the output of the accumulator 362 meets this "test"; if the "test" is failed, the system "will wait to output" until the threshold is met. This is incorrect because the threshold device 364 in Atarius appears to be a "hard" decision device, which decides what symbol ***value*** (e.g., for binary symbols, "1" or "0") to assign to a given symbol in response to comparing an output of the accumulator 362 corresponding to the symbol to a threshold. For example, if the output of the accumulator 362 exceeds the threshold, a first value is assigned to the symbol, while, if the output of the accumulator 362 is less than the threshold, a second value is assigned to the symbol.

In contrast, Claim 1 recites " determining whether to further process the first symbol representation or to process a second symbol representation for the symbol generated from the spread spectrum signal." The cited material from Atarius does not disclose or suggest the recited processing decisions on different ***generated*** symbol representations based on a quality determination. Rather, as discussed above, the cited portions of Atarius show a conventional symbol estimation process, in which a symbol estimate is selected from two predetermined values.

The Final Action and Advisory Action, which maintain the rejections from the First Office Action, do not comprehend these distinctions. As noted in Appellants' Request for Reconsideration filed October 20, 2005 in response to the Final Action, the decision device 364 in Atarius does not choose between two different ***generated*** symbol estimates for the same symbol as recited in Claim 1. Rather, the decision device 364 chooses between two

possible predetermined values (e.g., a "1" or a "0") for a symbol to generate a single symbol estimate for each given symbol. Therefore, Atarius neither discloses nor suggests the following recitations of Claim 1:

> . . . correlating the spread spectrum signal with a spreading sequence at a first plurality of correlation times to produce a first plurality of time-offset correlations;
> ***processing the first plurality of time-offset correlations to produce a first symbol representation for a symbol***;
> determining a first quality for the first symbol representation; and
> responsive to the determined first quality, ***determining whether to further process the first symbol representation or to process a second symbol representation for the symbol generated from the spread spectrum signal.***

Independent Claims 12, 32, 50, 58, 86 and 99 are patentable over Atarius for at least similar reasons to those supporting the patentability of Claim 1. For example, Claim 50 recites:

> A method of processing a spread spectrum signal, the method comprising:
> ***demodulating the spread spectrum signal according to a first demodulation process to generate a first symbol representation for a symbol***;
> determining a first quality for the first symbol representation; and
> responsive to the determined first quality, ***determining whether to further process the first symbol representation or to process a second symbol representation that is generated from the spread spectrum signal according to a second demodulation process.***

Along lines discussed above, Atarius does not disclose or suggests choosing between two representations of a symbol generated from different modulation processes.

Claim 58 recites:

> A method of processing a communications signal, the method comprising:
> ***demodulating the communications signal according to respective first and second demodulation processes to produce respective first and second symbol representations***;
> decoding a first one of the first and second symbol representations to determine a quality for the first one of the first and second symbol representations; and
> responsive to the determined quality, ***determining whether to further process the first symbol representation or to decode the second symbol representation.***

Claim 58 is patentable over Atarius for at least similar reasons to those discussed above for Claim 50.

For at least the foregoing reasons, Appellants submit that the rejections of Claims 1, 12, 32, 50, 58, 86 and 99 based on Atarius are erroneous and should be reversed. Appellants further submit that the claims depending from independent Claims 1, 12, 32, 50, 86 and 99 are patentable at least by virtue of the various ones of these independent claims from which they depend. Appellants further submit that several of the dependent claims are separately patentable for at least the reasons discussed below.

III. Dependent Claims 2, 13 and 100 are separately patentable over Atarius

Claim 2, which stands rejected as anticipated by Atarius, recites "generating the second symbol representation from the spread spectrum signal before determining whether to further process the first symbol representation or to process the second symbol representation for the symbol generated from the spread spectrum signal." Claims 13 and 100 include corresponding recitations. In rejecting Claim 2, the First Office Action states:

> Atarius does not teach generating the second one before determining whether to further process the first one or to process the second one. The office takes official notice that after the first data has been processed through an element in fig. 3 [of Atarius], the next data would be processed without waiting for all of the elements to complete processing since this would make the system faster. Thus, it would have been obvious . . . to modify the prior art teaching of Atarius with generating the second one before determining whether to processing the first one or to process the second one as indicated by the instant claims, because Atarius suggests a fast system and accordingly one element would not want to wait for all of the other elements down the chain to finish processing before the first element processes another data . .

First Office Action, pp. 3 and 4.

As noted in Appellants' Request for Reconsideration filed October 20, 2005, there is no evidentiary basis provided for such "official notice." In addition, the First Office Action fails to cite any particular portion of Atarius that teaches the alleged nature of the processing of a "first one" and a "second one." Moreover, even if Atarius suggests a "fast system," this is mere statement of a general desire, and provides no clear and particular suggestion as to why the particular proposed modification of Atarius would provide such a fast system.

The Advisory Action maintains this erroneous focus on processing rate or speed. *See Advisory Action*, p. 2. However, this has nothing to do with the recitations of Claim 2, as the rate at which data is serially processed has nothing to do with "determining whether to further process the first symbol representation or to process the second symbol representation for the

symbol generated from the spread spectrum signal," i.e., making a decision as to which of first and second representation of a symbol to process. This rejection further illuminates the fundamental misunderstanding of the distinctions between the claims and Atarius discussed above with reference to the rejections of the independent claims. For at least these additional reasons, Appellants submit that the rejections of Claims 2, 13, and 100 are erroneous and should be reversed.

IV. Dependent Claims 3, 14 and 101 are separately patentable over Atarius

Claim 3 recites " generating the second symbol representation from the spread spectrum signal after determining whether to further process the first symbol representation or to process the second symbol representation for the symbol generated from the spread spectrum signal." Claims 14 and 101 include corresponding recitations.

In rejecting Claim 3, the First Office Action states:

> Atarius does not teach generating the second one after determining whether to further process the second one. The office takes official notice that when the data in the system is arriving slowly, that element 364 in fig. 3 might be finished processing the data before another input is received an 112 generated.

First Office Action, p. 5. This rejection is maintained in the Final Action and the Advisory Action. This reasoning contains essentially the same logical flaw present in the rejection of Claim 2 discussed above, i.e., the rate of serial processing of data is irrelevant to "determining whether to further process the first symbol representation or to process the second symbol representation for the symbol generated from the spread spectrum signal." For at least these additional reasons, Appellants submit that the rejections of Claims 3, 14, and 101 are erroneous and should be reversed.

V. Dependent Claims 9, 27, 49, 57, 60, 88 and 107 are separately patentable over Atarius

Claim 9 recites "wherein the first symbol representation is an output of a RAKE demodulation process and wherein the second symbol representation is an output of a generalized RAKE (G-RAKE) demodulation process." Claims 27, 49, 57, 60 88 and 107 include corresponding recitations. In rejecting Claim 9, the First Office Action cites page 2, lines 1-15 of the present application, which refer to US Patent No. 5,572,552. *First Office*

Action, pp. 4 and 5. However, as noted in Appellant's Amendment filed May 2, 2005, the First Office Action provides no evidence from the prior art of a teaching or suggestion that the proposed combination Atarius and this material from the Background of the Invention section of the present application would be feasible, let alone desirable. For example, the First Office Action provides no evidence from the prior art as to how the RAKE and G-RAKE processes described in US Patent No. 5,572,552 would be implemented in the structure shown in the cited Fig. 3 of Atarius.

In response to these arguments, the Final Action simply does not address the lack of evidence of a motivation to combine, and instead merely recites case law that broadly states requirements under §103. *See Final Action*, p. 2. The Advisory Action similarly fails to address the lack of evidence of a motivation combine, presenting inappropriate grounds for combining references:

> Since the applicant combined his invention with applicant's background of the invention, the office also combined applicant's invention as anticipated by Atarius with the background of the invention to establish a common understanding of the use of a GRAKE receiver.

Advisory Action, p. 2. In other words, the Advisory Action attempts to find evidence of a motivation to combine in the mere fact that Appellants' disclosure of the invention is in the same document as a background description, i.e., the Advisory Action attempts to find evidence of a motivation to combine in Appellants' disclosure, not in the prior art. This reasoning cannot be used to support a rejection under § 103 and, for at least these additional reasons, the rejections of Claims 9, 27, 49, 57, 60, 88 and 107 based on Atarius are erroneous and should be reversed.

VI. <u>Dependent Claims 4-6, 22-24, 33-35, and 102-104 are separately patentable over Atarius in view of Held</u>

Claim 4 recites:

> . . . wherein determining a first quality for the first symbol representation comprises:
> decoding the first symbol representation; and
> determining the first quality responsive to the decoding of the first symbol representation.

Claims 22, 33 and 102 include corresponding recitations.

In rejecting Claim 4, the First Office Action states:

> . . . it would have been obvious . . . to arrive at the decoding as recited in the instant claims, because the combined teaching of Atarius and Held suggest decoding as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Atarius with Held because Atarius suggests receiving (something broad) in general and Held suggests the beneficial use of decoding to know what is received in the analogous art of receiving.

First Office Action, pp. 6 and 7. This flawed basis is maintained the Final Action and the Advisory Action. The First Office Action, Final Action and Advisory Action all fail to explain, for example, where the proposed combination of Atarius and Held teaches or suggest using the decoding described in Held in "determining the first quality responsive to the decoding of the first symbol representation" such that "responsive to the determined first quality" it is determined "whether to further process the first symbol representation or to process a second symbol representation for the symbol generated from the spread spectrum signal." The alleged evidence of a motivation for combining Atarius and Held is mere conclusory hand waiving about the "beneficial use of decoding," which falls well short of the clear and particular evidentiary requirements for combining references in a § 103 rejection. For at least these additional reasons, Appellants submit that the rejections of Claims 4, 22, 33 and 102 are erroneous and should be reversed. Appellants further submit that Claims 5-7, 23-25, 34-36, and 103-105 are patentable for at least the reasons supporting the separate patentability of Claims 4, 22, 33, and 102.

VII. Dependent Claims 51, 59 and 87 are separately patentable over Atarius in view of Takano

Claim 51, which depends directly from independent Claim 50, recites "wherein the first and second demodulation processes are operative to provide different levels of performance in a given interference environment." In rejecting Claim 51, the First Office Action cites FIG. 7 of Takano as teaching the above-quoted recitations, stating "depending on the amount of delay between the different demodulating portions, different levels of performance will be achieved." *First Office Action*, p. 10. This rejection is maintained in the Final Action and the Advisory Action.

FIG. 7 of Takano has nothing to do with "first and second demodulation processes" for generating first and second symbol representations such that it may determined "whether to further process the first symbol representation or to process a second symbol representation that is generated from the spread spectrum signal according to a second demodulation process." Rather, the different demodulating parts shown in FIG. 7 of Takano are for detecting CDMA signals at a base station from ***different*** mobile stations that have different assigned time offsets. *See Takano*, column 13, lines 46-57. Accordingly, Takano does not provide the teachings alleged in the First Office Action. Moreover, the alleged evidence of a motivation to combine Atarius and Takano is, much as with the rejections of Claim 4 discussed above, vague and conclusory statements about "beneficial use of different performance levels" that "results in better correlation." *First Office Action*, p. 11. This is irrelevant to the claimed subject matter. For at least these additional reasons, Appellants submit that Claim 51 is patentable. Similar reasoning supports the separate patentability of Claims 59 and 87.

VI. Conclusion

In light of the above discussion, Appellants submit that the pending claims are directed to patentable subject matter and, therefore, request reversal of the rejections of those claims and passing of the application to issue.

It is not believed that an extension of time and/or additional fee(s) are required, beyond those that may otherwise be provided for in documents accompanying this paper. In the event, however, that an extension of time is necessary to allow consideration of this paper, such an extension is hereby petitioned for under 37 C.F.R. §1.136(a). Any additional fees believed to be due in connection with this paper may be charged to Deposit Account No. 50-0220.

Respectfully submitted,

Robert M. Meeks
Registration No. 40,723
Attorney for Appellants

Customer No. 20792
Myers Bigel Sibley & Sajovec, P.A.
P. O. Box 37428
Raleigh, North Carolina 27627
Telephone: (919) 854-1400
Facsimile: (919) 854-1401

APPENDIX A
Pending Claims USSN 10/092,646
Filed March 6, 2002

Listing of the Claims:

1. (Original) A method of processing a spread spectrum signal, the method comprising:

correlating the spread spectrum signal with a spreading sequence at a first plurality of correlation times to produce a first plurality of time-offset correlations;

processing the first plurality of time-offset correlations to produce a first symbol representation for a symbol;

determining a first quality for the first symbol representation; and

responsive to the determined first quality, determining whether to further process the first symbol representation or to process a second symbol representation for the symbol generated from the spread spectrum signal.

2. (Original) The method of Claim 1, comprising generating the second symbol representation from the spread spectrum signal before determining whether to further process the first symbol representation or to process the second symbol representation for the symbol generated from the spread spectrum signal.

3. (Original) The method of Claim 1, comprising generating the second symbol representation from the spread spectrum signal after determining whether to further process the first symbol representation or to process the second symbol representation for the symbol generated from the spread spectrum signal.

4. (Original) The method of Claim 1, wherein determining a first quality for the first symbol representation comprises:

decoding the first symbol representation; and

determining the first quality responsive to the decoding of the first symbol representation.

5. (Original) The method of Claim 4:
wherein decoding the first symbol representation comprises decoding the first symbol representation to generate decoded data; and
wherein determining the first quality responsive to the decoding of the first symbol representation comprises error checking the decoded data.

6. (Original) The method of Claim 5, wherein error checking the decoded data comprises performing at least one of a cyclic redundancy check (CRC), a bit error rate determination, and a Reed-Solomon decoding of the decoded data.

7. (Original) The method of Claim 5, wherein determining the first quality responsive to the decoding of the first symbol representation comprises generating a decoding metric as part of the decoding of the first symbol representation.

8. (Original) The method of Claim 1, wherein determining a first quality for the first symbol representation comprises determining a soft output that indicates a level of confidence in the first symbol representation.

9. (Original) The method of Claim 1, wherein the first symbol representation is an output of a RAKE demodulation process and wherein the second symbol representation is an output of a generalized RAKE (G-RAKE) demodulation process.

10. (Original) The method of Claim 9, wherein determining whether to further process the first symbol representation or to process a second symbol representation is preceded by:

generating the second symbol representation from the spread spectrum signal according to the G-RAKE demodulation process;

storing the first and second symbol representations; and

determining a second quality for the second symbol representation; and

wherein determining whether to further process the first symbol representation comprises determining whether to process the stored first symbol representation or the second symbol representation based on a comparison of the first quality and the second quality.

11. (Original) The method of Claim 1, wherein determining whether to further process the first symbol representation or to process a second symbol representation for the symbol generated from the spread spectrum signal comprises determining whether to further process first decoded data corresponding to the first symbol representation or second decoded data corresponding to the second symbol representation.

12. (Original) A method of processing a spread spectrum signal, the method comprising:

correlating the spread spectrum signal with a spreading sequence at a first plurality of correlation times to produce a first plurality of time-offset correlations;

processing the first plurality of time-offset correlations to produce a first symbol representation for a symbol;

determining a first quality for the first symbol representation; and

responsive to the determined first quality failing to meet a predetermined criterion, processing a second plurality of time-offset correlations of the spread spectrum signal with the spreading sequence to produce a second symbol representation.

13. (Original) The method of Claim 12, wherein the first and second pluralities of time-offset correlations are both generated before processing the first plurality of time-offset correlations to produce the first symbol representation.

14. (Original) The method of Claim 12, wherein the second plurality of time-offset correlations is generated responsive to the first quality failing to meet the predetermined criterion.

15. (Original) The method of Claim 12, wherein processing a second plurality of time-offset correlations of the spread spectrum signal with the spreading sequence to produce the second symbol representation responsive to the determined first quality failing to meet a predetermined criterion is preceded by correlating the spread spectrum signal with the spreading sequence at a second plurality of correlation times to produce the second plurality of time-offset correlations.

16. (Original) The method of Claim 15, further comprising determining the first and second pluralities of correlation times based on a channel estimate.

17. (Original) The method of Claim 16, wherein determining the first and second pluralities of correlation times based on a channel estimate comprises the step of determining a first one of the first and second pluralities of correlation times based on a channel estimate and determining a second one of the first and second pluralities of correlation times based on a channel estimate and information regarding an interfering spread spectrum signal.

18. (Original) The method of Claim 12:
wherein processing the first plurality of time-offset correlations to produce a first symbol representation for a symbol comprises combining the first plurality of time-offset correlations according to a first combination scheme to produce the first symbol representation; and wherein processing a second plurality of time-offset correlations of the spread spectrum signal with the spreading sequence to produce the second symbol representation for the symbol responsive to the determined first quality failing to meet a predetermined criterion comprises combining the second plurality of time-offset correlations according to a second combination scheme to produce the second symbol representation.

19. (Original) The method of Claim 18, further comprising determining a first one of the first and second combination schemes from a channel estimate and determining a second one of the first and second combination schemes from a channel estimate and information regarding an interfering spread spectrum signal.

20. (Original) The method of Claim 12, wherein processing a second plurality of time-offset correlations to produce the second symbol representation responsive to the first quality failing to meet a predetermined criterion is followed by:
determining a second quality for the second symbol representation; and
further processing a selected one of the first and second symbol representations based on a comparison of the determined first and second qualities.

21. (Original) The method of Claim 12, wherein generation of the first symbol representation consumes less of a selected resource than generation of the second symbol representation.

22. (Original) The method of Claim 12, wherein determining a first quality for the first symbol representation comprises:
decoding the first symbol representation; and
determining the first quality responsive to the decoding of the first symbol representation.

23. (Original) The method of Claim 22:
wherein decoding the first symbol representation comprises decoding the first symbol representation to generate decoded data; and
wherein determining the first quality responsive to the decoding of the first symbol representation comprises error checking the decoded data.

24. (Original) The method of Claim 23, wherein error checking the decoded data comprises performing at least one of a cyclic redundancy check (CRC), a bit error rate determination, and a Reed-Solomon decoding of the decoded data.

25. (Original) The method of Claim 23, wherein determining the first quality responsive to the decoding of the first symbol representation comprises generating a decoding metric as part of the decoding of the first symbol representation.

26. (Original) The method of Claim 12, wherein determining a first quality for the first symbol representation comprises determining a soft output that indicates a level of confidence in the first symbol representation.

27. (Original) The method of Claim 12, wherein the first symbol representation is an output of a RAKE demodulation process and wherein the second symbol representation is an output of a generalized RAKE (G-RAKE) demodulation process.

28. (Original) The method of Claim 12, wherein determining whether to further process the first symbol representation or to process a second symbol representation for the symbol generated from the spread spectrum signal comprises determining whether to further process first decoded data corresponding to the first symbol representation or second decoded data corresponding to the second symbol representation.

29. (Original) The method of Claim 12, wherein the order in which the first and second symbol representations are generated is adaptively selected.

30. (Original) The method of Claim 29, wherein the order in which the first and second symbol representations are generated is selected responsive to a decoding history.

31. (Original) The method of Claim 29, wherein the order in which the first and second symbol representations are generated is selected based on a decoding history of at least one of a slot and a frame.

32. (Original) A method of processing a spread spectrum signal, the method comprising:

correlating the spread spectrum signal with a spreading sequence at respective first and second pluralities of correlation times to produce respective first and second pluralities of time-offset correlations;

processing respective ones of the first and second pluralities of time-offset correlations to produce respective first and second symbol representations for a symbol;

determining at least one quality for at least one of the first and second symbol representations; and

responsive to the determined at least one quality, determining whether to further process one of the first symbol representation or the second symbol representation.

33. (Original) The method of Claim 32, wherein determining at least one quality for at least one of the first and second symbol representations comprises:
decoding at least one of the first and second symbol representations; and
determining the at least one quality responsive to the decoding of the at least one of the first and second symbol representations.

34. (Original) The method of Claim 33:

wherein decoding at least one of the first and second symbol representations comprises decoding at least one of the first and second symbol representations to generate corresponding decoded data; and

wherein determining the at least one quality responsive to the decoding of the at least one of the first and second symbol representations comprises error checking the decoded data.

35. (Original) The method of Claim 34, wherein error checking the decoded data comprises performing at least one of a cyclic redundancy check (CRC), a bit error rate determination, and a Reed-Solomon decoding of the decoded data.

36. (Original) The method of Claim 34, wherein determining the at least one quality responsive to the decoding of the at least one of the first and second symbol representations comprises generating at least one decoding metric as part of the decoding of the at least one of the first and second symbol representations.

37. (Original) The method of Claim 32, wherein determining a least one quality for at least one of the first and second symbol representations comprises determining at least one soft output that indicates level of confidence in the at least one of the first and second symbol representations.

38. (Original) The method of Claim 32:

wherein determining at least one quality for at least one of the first and second symbol representations comprises determining respective first and second qualities for respective ones of the first and second symbol representations; and

wherein determining whether to further process one of the first symbol representation or the second symbol representation based on the determined at least one quality comprises determining whether to further process one of the first and second symbol representations based on a comparison of the determined first and second qualities.

39. (Previously presented) The method of Claim 32:

wherein determining at least one quality for at least one of the first and second symbol representations comprises:

decoding a first selected one of the first and second symbol representations to generate first decoded data; and

determining a corresponding decoding quality responsive to the decoding of the first selected one of the first and second symbol representations; and

wherein determining whether to further process one of the first symbol representation or the second symbol representation based on the determined at least one quality comprises determining whether to further process the first decoded data or to decode a second selected one of the first and second symbol representations to generate second decoded data based on the determined decoding quality.

40. (Original) The method of Claim 39, wherein decoding a first selected one of the first and second symbol representations to generate first decoded data is preceded by adaptively selecting the first selected one of the first and second symbol representations.

41. (Original) The method of Claim 40, wherein the first selected one of the first and second symbol representations is selected based on a decoding history.

42. (Original) The method of Claim 40, wherein the first selected one of the first and second symbol representations is selected based on a decoding history of at least one of a slot and a frame.

43. (Original) The method of Claim 32:

wherein determining at least one quality for at least one of the first and second symbol representations comprises:

partially decoding respective ones of the first and second symbol representations; and determining respective first and second qualities for respective ones of the first and second symbol representations responsive to the partial decoding of the first and second symbol representations; and

wherein determining whether to further process one of the first symbol representation or the second symbol representation based on the determined at least one quality comprises determining whether to further decode one of the first or second symbol representations based on a comparison of the determined first and second qualities.

44. (Original) The method of Claim 32:

wherein determining at least one quality for at least one of the first and second symbol representations comprises:

syndrome decoding respective ones of the first and second symbol representations; and

determining respective first and second qualities for respective ones of the first and second symbol representations responsive to the syndrome decoding of the first and second symbol representations; and

wherein determining whether to further process one of the first symbol representation or the second symbol representation based on the determined at least one quality comprises determining whether to further decode one of the first or second symbol representations based on a comparison of the determined first and second qualities.

45. (Original) The method of Claim 32, further comprising determining the first and second pluralities of correlation times based on a channel estimate.

46. (Original) The method of Claim 45, wherein determining the first and second pluralities of correlation times based on a channel estimate comprises the step of determining a first one of the first and second pluralities of correlation times based on a channel estimate and determining a second one of the first and second pluralities of correlation times based on a channel estimate and information regarding an interfering spread spectrum signal.

47. (Original) The method of Claim 32, wherein processing respective ones of the first and second pluralities of time-offset correlations to produce respective first and second symbol representations for a symbol comprises combining respective ones of the first and second pluralities of time-offset correlations according to respective first and second combination schemes to produce respective ones of the first and second symbol representations.

48. (Original) The method of Claim 47, further comprising determining a first one of the first and second combination schemes from a channel estimate and determining a second one of the first and second combination schemes from a channel estimate and information regarding an interfering spread spectrum signal.

49. (Original) The method of Claim 32, wherein the first symbol representation is an output of a RAKE demodulation process and wherein the second symbol representation is an output of a generalized RAKE (G-RAKE) demodulation process.

50. (Original) A method of processing a spread spectrum signal, the method comprising:

demodulating the spread spectrum signal according to a first demodulation process to generate a first symbol representation for a symbol;

determining a first quality for the first symbol representation; and

responsive to the determined first quality, determining whether to further process the first symbol representation or to process a second symbol representation that is generated from the spread spectrum signal according to a second demodulation process.

51. (Original) The method of Claim 50, wherein the first and second demodulation processes are operative to provide different levels of performance in a given interference environment.

52. (Original) The method of Claim 50, wherein the spread spectrum signal comprises a first spread spectrum signal, wherein a first one of the first and second demodulation processes is operative to provide superior performance in an interference environment dominated by one or more second spread spectrum signals transmitted from one or more signal sources other than a source of the first spread spectrum signal, and wherein a second one of the first and second demodulation process is operative to provide superior performance in an interference environment dominated by one or more third spread spectrum signals transmitted from the source of the first spread spectrum signal.

53. (Original) The method of Claim 50, wherein the first and second symbol representations are generated in series.

54. (Original) The method of Claim 50, wherein the first and second symbol representations are generated in parallel.

55. (Original) The method of Claim 54:

wherein determining whether to further process the first symbol representation or to process a second symbol representation that is generated from the spread spectrum signal according to a second demodulation process is preceded by determining a second quality for the second symbol representation; and

wherein determining whether to further process the first symbol representation or to process a second symbol representation that is generated from the spread spectrum signal according to a second demodulation process comprises determining whether to further

process the first symbol representation or to further process the second symbol representation based on a comparison of the first and second qualities.

56. (Original) The method of Claim 50:

wherein determining whether to further process the first symbol representation or to process a second symbol representation that is generated from the spread spectrum signal according to a second demodulation process is preceded by generating the second symbol representation;

wherein determining whether to further process the first symbol representation or to process a second symbol representation that is generated from the spread spectrum signal according to a second demodulation process comprises determining whether to further process the first symbol representation or to further process the second symbol representation based on a decoding of one of the first and second symbol representations.

57. (Original) The method of Claim 50, wherein a first one of the first and second demodulation processes comprises a RAKE demodulation process, and wherein a second one of the first and second demodulation processes comprises a generalized RAKE (G-RAKE) demodulation process.

58. (Original) A method of processing a communications signal, the method comprising:

demodulating the communications signal according to respective first and second demodulation processes to produce respective first and second symbol representations;

decoding a first one of the first and second symbol representations to determine a quality for the first one of the first and second symbol representations; and

responsive to the determined quality, determining whether to further process the first symbol representation or to decode the second symbol representation.

59. (Original) The method of Claim 58, wherein the first and second demodulation processes comprise respective first and second spread spectrum demodulation processes.

60. (Original) The method of Claim 59, wherein the first and second demodulation processes comprise respective ones of a RAKE demodulation process and a generalized RAKE (G-RAKE) demodulation process.

61. (Original) The method of Claim 58, wherein the first and second demodulation processes comprise respective non-spread spectrum demodulation processes.

62. (Original) The method of Claim 58, comprising adaptively selecting the first one of the first and second symbol representations for first decoding.

63. (Original) The method of Claim 62, wherein adaptively selecting the first one of the first and second symbol representations for first decoding comprises selecting the first one of the first and second symbol representations for first decoding responsive to a partial decoding of at least one of the first and second symbol representations.

64. (Original) The method of Claim 62, wherein adaptively selecting the first one of the first and second symbol representations for first decoding comprises selecting the first one of the first and second symbol representations for first decoding responsive to a syndrome decoding of the first and second symbol representations.

65. (Original) The method of Claim 62, wherein symbol representations produced by the first and second demodulation processes comprise soft values that indicate a level of confidence in the symbol representations, and wherein adaptively selecting the first one of the first and second symbol representations for first decoding comprises selecting the first one of the first and second symbol representations for first decoding responsive to the soft output values.

66. (Original) The method of Claim 65, wherein selecting the first one of the first and second symbol representations for first decoding responsive to the soft output values comprises selecting the first one of the first and second symbol representations for first

decoding responsive to a history of the soft output values produced by the first and second demodulation processes.

67. (Original) The method of Claim 62, wherein adaptively selecting the first one of the first and second symbol representations for first decoding comprises selecting the first one of the first and second symbol representations for first decoding based on a decoding history.

68. (Original) The method of Claim 67, wherein the decoding history comprises a decoding history of at least one of slot and a frame.

69. (Previously Presented) A spread spectrum receiver, comprising:

a multi-process demodulator circuit operative to process a spread spectrum signal according to respective first and second demodulation processes to produce respective first and second symbol representations for a symbol; and

a quality discriminator circuit operative to selectively output decoded data corresponding to a selected one of the first and second symbol representations based on a quality of at least one of the first and second symbol representations, wherein the spread spectrum signal comprises a first spread spectrum signal, wherein a first one of the first and second demodulation processes is operative to provide superior performance in an interference environment dominated by one or more second spread spectrum signals transmitted from one or more signal sources other than a source of the first spread spectrum signal, and wherein a second one of the first and second demodulation process is operative to provide superior performance in an interference environment dominated by one or more third spread spectrum signals transmitted from the source of the first spread spectrum signal.

70. (Original) A receiver according to Claim 69, wherein the first and second demodulation processes are operative to provide different levels of performance in a given interference environment.

71. (Canceled)

72. (Original) A receiver according to Claim 69, wherein the multi-process demodulator circuit is operative to generate the first and second symbol representations in series.

73. (Original) A receiver according to Claim 69, wherein the multi-process demodulator circuit is operative to generate the first and second symbol representations in parallel.

74. (Original) A receiver according to Claim 73, wherein the quality discriminator circuit is operative to output decoded data corresponding to a selected one of the first and second symbol representations based on a comparison of first and second qualities of the first and second symbol representations.

75. (Original) A receiver according to Claim 69, wherein the quality discriminator circuit is operative to output decoded data corresponding to a selected one of the first and second symbol representations based on a decoding of at least one of the first and second symbol representations.

76. (Original) A receiver according to Claim 69, wherein a first one of the first and second demodulation processes comprises a RAKE demodulation process, and wherein a second one of the first and second demodulation processes comprises a generalized RAKE (G-RAKE) demodulation process.

77. (Original) A receiver according to Claim 69, wherein the multi-process demodulator circuit comprises:

a correlator circuit operative to correlate the spread spectrum signal at a plurality of selected correlation times to produce a plurality of time-offset correlations; and

a correlation processor circuit operative to process the plurality of correlation times to generate a symbol representation.

78. (Original) A receiver according to Claim 77, wherein the correlation processor circuit comprises a combiner circuit operative to combine the plurality of time-offset correlations according to selected combining weighting factors.

79. (Original) A receiver according to Claim 78, wherein the discriminator circuit is operative to generate a quality indicator that indicates a quality of a symbol representation generated by the multi-process demodulator, and wherein the combiner circuit is operative to select the combining weighting factors responsive to the quality indicator.

80. (Original) A receiver according to Claim 77, wherein the discriminator circuit is operative to generate a quality indicator that indicates a quality of a symbol representation generated by the multi-process demodulator, and wherein the correlator circuit is operative to select the plurality of correlation times responsive to the quality indicator.

81. (Original) A receiver according to Claim 69, wherein the quality discriminator circuit comprises:

a decoder operative to decode the first and second symbol representations; and

a quality indicator generator circuit operative to generate a quality indicator responsive to a decoding of a symbol representation.

82. (Original) A receiver according to Claim 81, wherein the quality indicator comprises a decoding metric.

83. (Original) A receiver according to Claim 81, wherein the quality indicator generator circuit comprises an error checking circuit.

84. (Original) A receiver according to Claim 69, wherein the receiver comprises a radio processor operative to receive a radio frequency spread spectrum communications signal and to generate a signal sample therefrom, and wherein the multi-process demodulator circuit is operative to generate the first and second symbol representations from the signal sample.

85. (Original) A receiver according to Claim 84, included in one of a wireless communications terminal or a wireless communications base station.

86. (Original) A receiver, comprising:

a multi-process demodulator circuit operative to process a communications signal according to respective first and second demodulation processes to produce respective first and second symbol representations; and

a quality discriminator circuit operative to decode a first one of the first and second symbol representations to determine a quality for the first one of the first and second symbol representations and, responsive to the determined quality, to determine whether to further process the first symbol representation or to decode the second symbol representation.

87. (Original) A receiver according to Claim 86, wherein the first and second demodulation processes comprise respective first and second spread spectrum demodulation processes.

88. (Original) A receiver according to Claim 87, wherein the first and second demodulation processes comprise respective ones of a RAKE demodulation process and a generalized RAKE (G-RAKE) demodulation process.

89. (Original) A receiver according to Claim 86, wherein the first and second demodulation processes comprise respective non-spread spectrum demodulation processes.

90. (Original) A receiver according to Claim 86, wherein the quality discriminator circuit is operative to adaptively select the first one of the first and second symbol representations for first decoding.

91. (Original) A receiver according to Claim 90, wherein the quality discriminator circuit is operative to select the first one of the first and second symbol representations for first decoding responsive to a partial decoding of at least one of the first and second symbol representations.

92. (Original) A receiver according to Claim 90, wherein the quality discriminator circuit is operative to select the first one of the first and second symbol representations for first decoding responsive to a syndrome decoding of the first and second symbol representations.

93. (Original) A receiver according to Claim 90, wherein symbol representations produced by the multi-process demodulator circuit comprise soft values that indicate a level of confidence in the symbol representations, and wherein the quality discriminator circuit is operative to select the first one of the first and second symbol representations for first decoding responsive to the soft output values.

94. (Original) A receiver according to Claim 93, wherein the quality discriminator circuit is operative to select the first one of the first and second symbol representations for first decoding responsive to a history of the soft output values produced by the first and second demodulation processes.

95. (Original) A receiver according to Claim 90, wherein the quality discriminator circuit is operative to select the first one of the first and second symbol representations for first decoding based on a decoding history.

96. (Original) A receiver according to Claim 95, wherein the decoding history comprises a decoding history of at least one of slot and a frame.

97. (Original) A receiver according to Claim 86, wherein the receiver further comprises a radio receiver operative to receive a radio frequency signal and to generate a signal sample therefrom, and wherein the multi-process demodulator is operative to generate the first and second symbol representations from the signal sample.

98. (Original) A receiver according to Claim 97, included in one of a wireless communications terminal and a wireless communications base station.

99. (Original) An apparatus for processing a spread spectrum signal, the method comprising:

means for correlating the spread spectrum signal with a spreading sequence at a first plurality of correlation times to produce a first plurality of time-offset correlations;

means for processing the first plurality of time-offset correlations to produce a first symbol representation for a symbol;

means for determining a first quality for the first symbol representation; and

means, responsive to the determined first quality, for determining whether to further process the first symbol representation or to process a second symbol representation for the symbol generated from the spread spectrum signal.

100. (Original) An apparatus according to Claim 99, comprising means for generating the second symbol representation from the spread spectrum signal before determining whether to further process the first symbol representation or to process the second symbol representation for the symbol generated from the spread spectrum signal.

101. (Original) An apparatus according to Claim 99, comprising means for generating the second symbol representation from the spread spectrum signal after determining whether to further process the first symbol representation or to process the second symbol representation for the symbol generated from the spread spectrum signal.

102. (Original) An apparatus according to Claim 99, wherein the means for determining a first quality for the first symbol representation comprises:
means for decoding the first symbol representation; and
means for determining the first quality responsive to the decoding of the first symbol representation.

103. (Original) An apparatus according to Claim 102:
wherein the means for decoding the first symbol representation comprises means for decoding the first symbol representation to generate decoded data; and
wherein the means for determining the first quality responsive to the decoding of the first symbol representation comprises means for error checking the decoded data.

104. (Original) An apparatus according to Claim 103, wherein the means for error checking the decoded data comprises means for performing at least one of a cyclic redundancy check (CRC), a bit error rate determination, and a Reed-Solomon decoding of the decoded data.

105. (Original) An apparatus according to Claim 103, wherein the means for determining the first quality responsive to the decoding of the first symbol representation comprises means for generating a decoding metric as part of the decoding of the first symbol representation.

106. (Original) An apparatus according to Claim 99, wherein the means for determining a first quality for the first symbol representation comprises means for determining a soft output that indicates a level of confidence in the first symbol representation.

107. (Original) An apparatus according to Claim 99, wherein the first symbol representation is an output of a RAKE demodulation process and wherein the second symbol representation is an output of a generalized RAKE (G-RAKE) demodulation process.

108. (Original) An apparatus according to Claim 99, wherein the means for determining whether to further process the first symbol representation or to process a second symbol representation for the symbol generated from the spread spectrum signal comprises means for determining whether to further process first decoded data corresponding to the first symbol representation or second decoded data corresponding to the second symbol representation.

APPENDIX B – EVIDENCE APPENDIX

(NONE)

APPENDIX C – RELATED PROCEEDINGS

(NONE)